

said solution having 7 to 24 points of free acid, 50 to 140 points of total acid, and an S value of 0.2 to 1, wherein, after drying, the manganese phosphate layer having a minimum thickness of 2 μm and an average maximum roughness depth (R^2) of 2.5 μm

9. The method according to claim 8, wherein said phosphating solution that comprises 0.5 to 2 g/l of nitroguanidine.
10. A method according to claim 8, wherein the phosphating solution comprises not more than 2.5 g/l of iron (II) ions.
11. A method according to claim 8, wherein the workpiece is steel and said phosphating solution comprises a complex-forming agent for the alloying constituents of the steel.
12. A method according to claim 11, wherein said coupler-forming agent is citric acid.
13. A method according to claim 8, wherein said phosphating solution further comprises at least one of
- 0.2 to 4 g/l of nickel ions and
- 0.2 to 4 g/l of magnesium ions.
14. A method according to claim 8, wherein at least a portion of the manganese ions in said phosphating solution are replaced by manganese carbonate to neutralize free acid.
15. A the method according to claim 8, wherein said workpieces are subjected to a sliding friction.
16. A method according to claim 8, wherein said workpieces are selected from the group consisting of axles, gear mechanism parts and engine pistons.